



Atty. Dkt. No. 067238-0115

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Atsufumi SHIBAYAMA, et al.
Title: DATA PROCESSOR WITH AN IMPROVED
DATA DEPENDENCE DETECTOR
Appl. No.: 09/994,806
Filing Date: 11/28/2001
Examiner: Unknown
Art Unit: 2152

TRANSMITTAL OF FORMAL DRAWINGS

Commissioner for Patents
Washington, D.C. 20231

ATTENTION: DRAWING REVIEW BRANCH

Sir:

Transmitted herewith are the formal drawings (12 sheets, Figures 1A-1D, 2-5, 6A-6C, 7A-7C, 8, 9A-9C, and 10) for the above-identified application. The Official Draftsperson is respectfully requested to approve these drawings for entry into the application.

Respectfully submitted,

By Aaron C. Blumenthal
(Signature) Reg# 41,268
for David A. Blumenthal
Attorney for Applicant
Registration No. 26,257

Date March 3, 2003

FOLEY & LARDNER
Customer Number: 22428



22428

PATENT TRADEMARK OFFICE

Telephone: (202) 672-5407
Facsimile: (202) 672-5399



Title: DATA PROCESSOR WITH AN IMPROVED DATA DEPENDENCE DETECTOR

Inventors: Atsufumi SHIBAYAMA, et al.
Appl. No.: 09/994,806

1 / 14

FIG. 1A FIG. 1B FIG. 1C FIG. 1D
 prior art prior art prior art prior art
 {cycle number} {prior art} {prior art} {prior art}

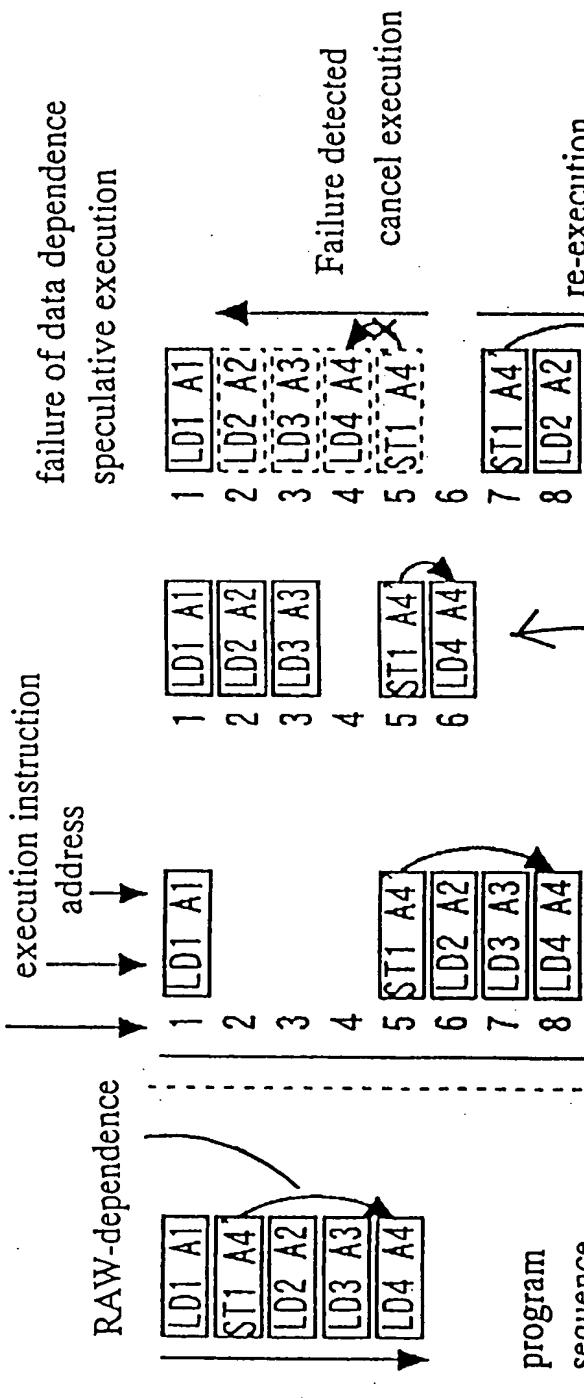


FIG. 1C FIG. 1D

FIG. 1B

FIG. 1A

failure of data dependence
speculative execution

execution instruction
| address

RAW-dependence

101

LD1 A1
ST1 A4
LD2 A2
LD3 A3
LD4 A4

program
sequence

execution in program sequence

success of data dependence speculative execution

FIG. 1C FIG. 1D
 prior art prior art

FIG. 1B

FIG. 1A

failure of data dependence
speculative execution

execution instruction
| address

RAW-dependence

101

LD1 A1
ST1 A4
LD2 A2
LD3 A3
LD4 A4

program
sequence

110

success of data dependence speculative execution



Title: DATA PROCESSOR WITH AN
IMPROVED DATA DEPENDENCE
DETECTOR

Inventors: Atsufumi SHIBAYAMA, et al.
Appl. No.: 09/994,806

FIG. 2 prior art

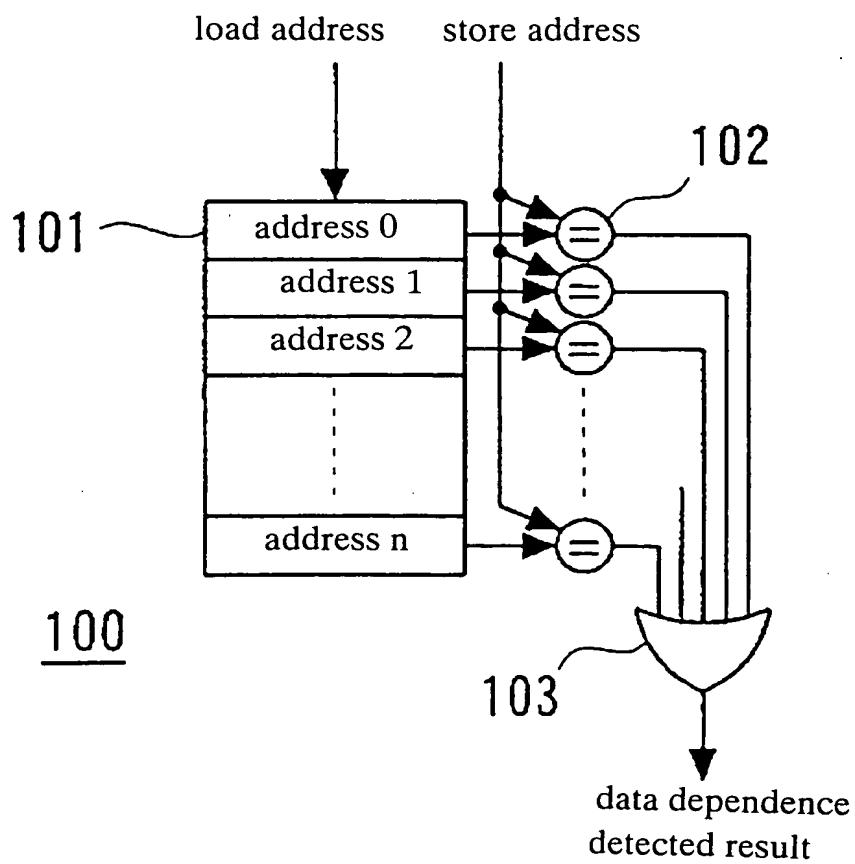
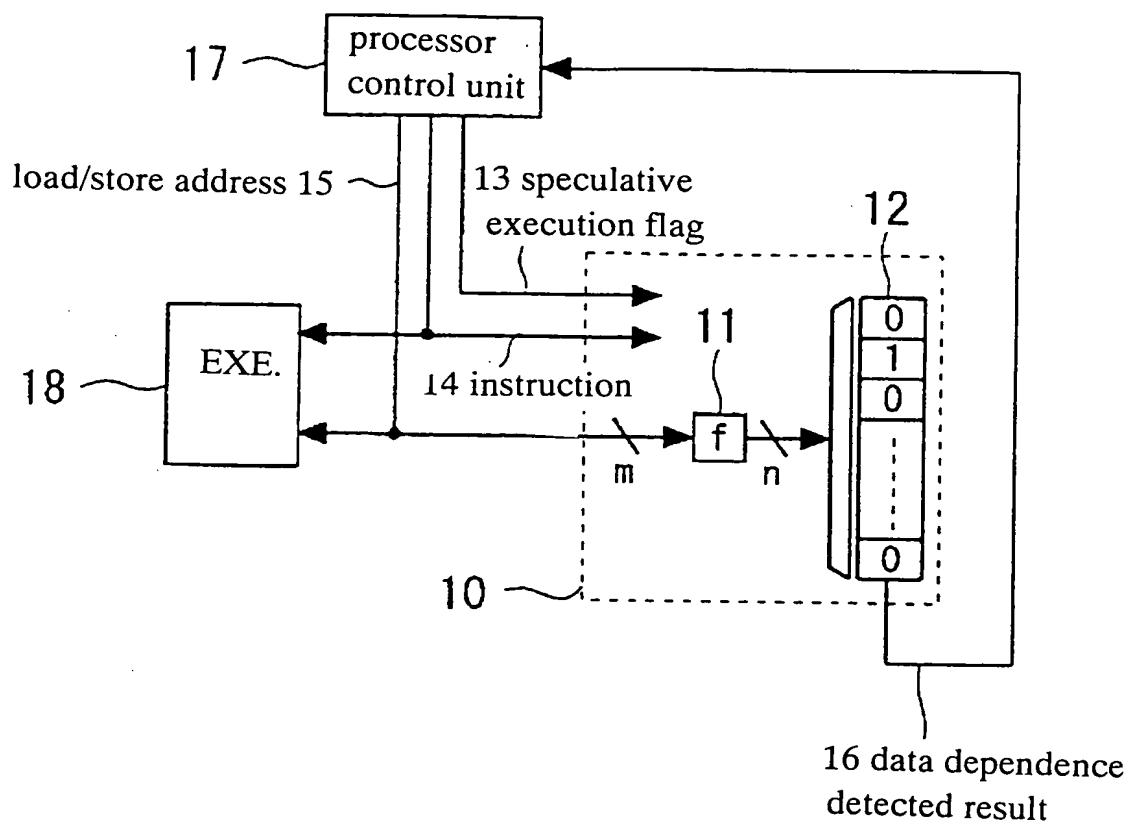


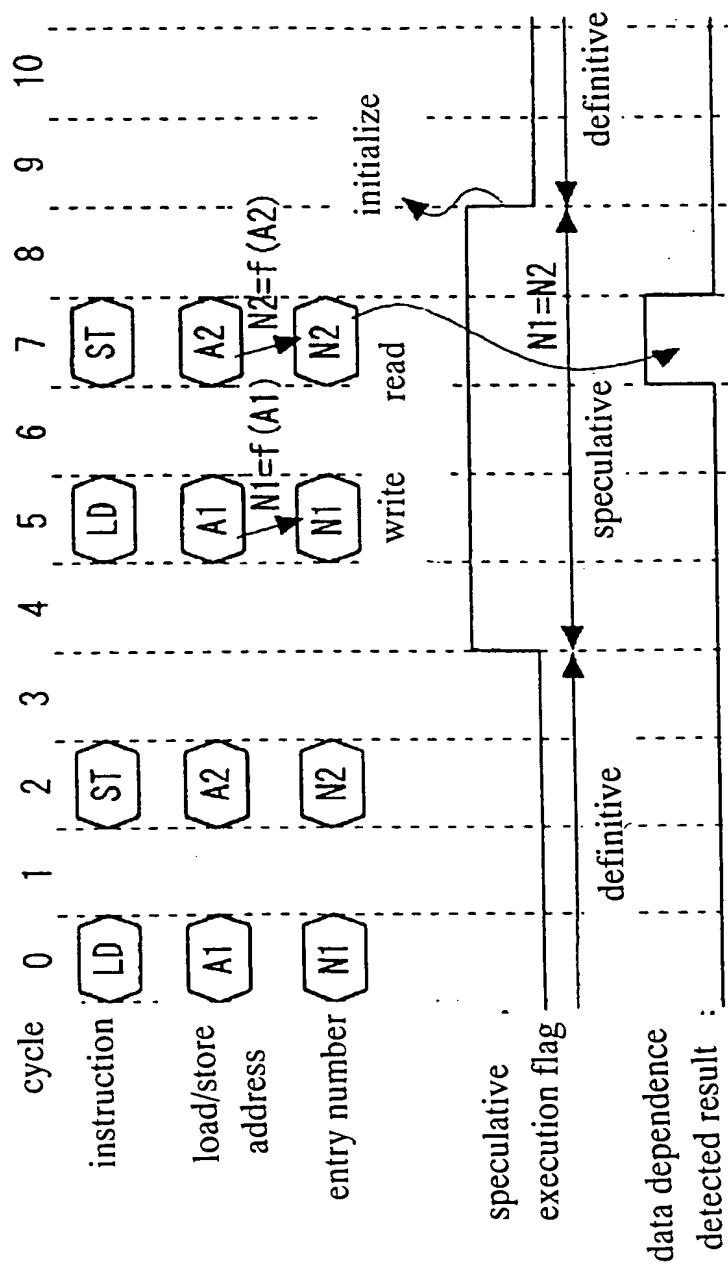


FIG. 3



O I P E
MAR 03 2003
PATENT & TRADEMARK OFFICE
Title: DATA PROCESSOR WITH AN
IMPROVED DATA DEPENDENCE
DETECTOR
Inventors: Atsufumi SHIBAYAMA, et al.
Appl. No.: 09/994,806

FIG. 4





Title: DATA PROCESSOR WITH AN
IMPROVED DATA DEPENDENCE
DETECTOR
Inventors: Atsufumi SHIBAYAMA, et al.
Appl. No.: 09/994,806

5/12

FIG. 5

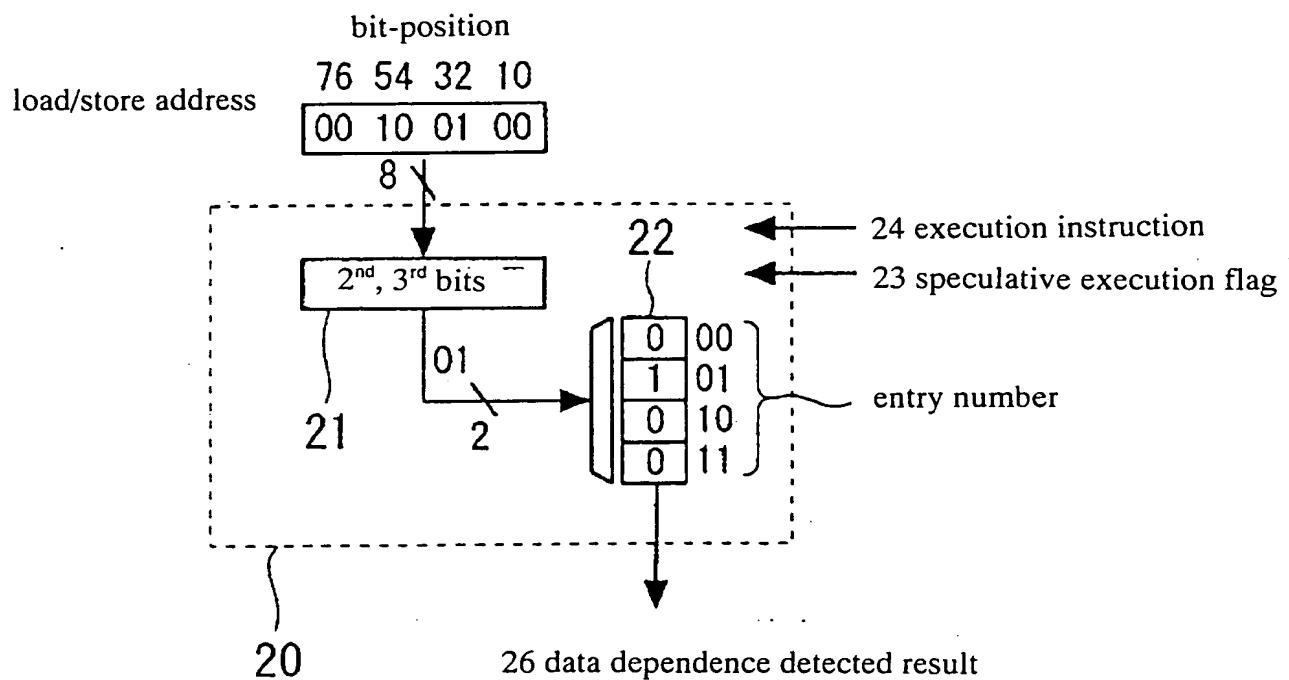




FIG. 6A

FIG. 6B

FIG. 6C

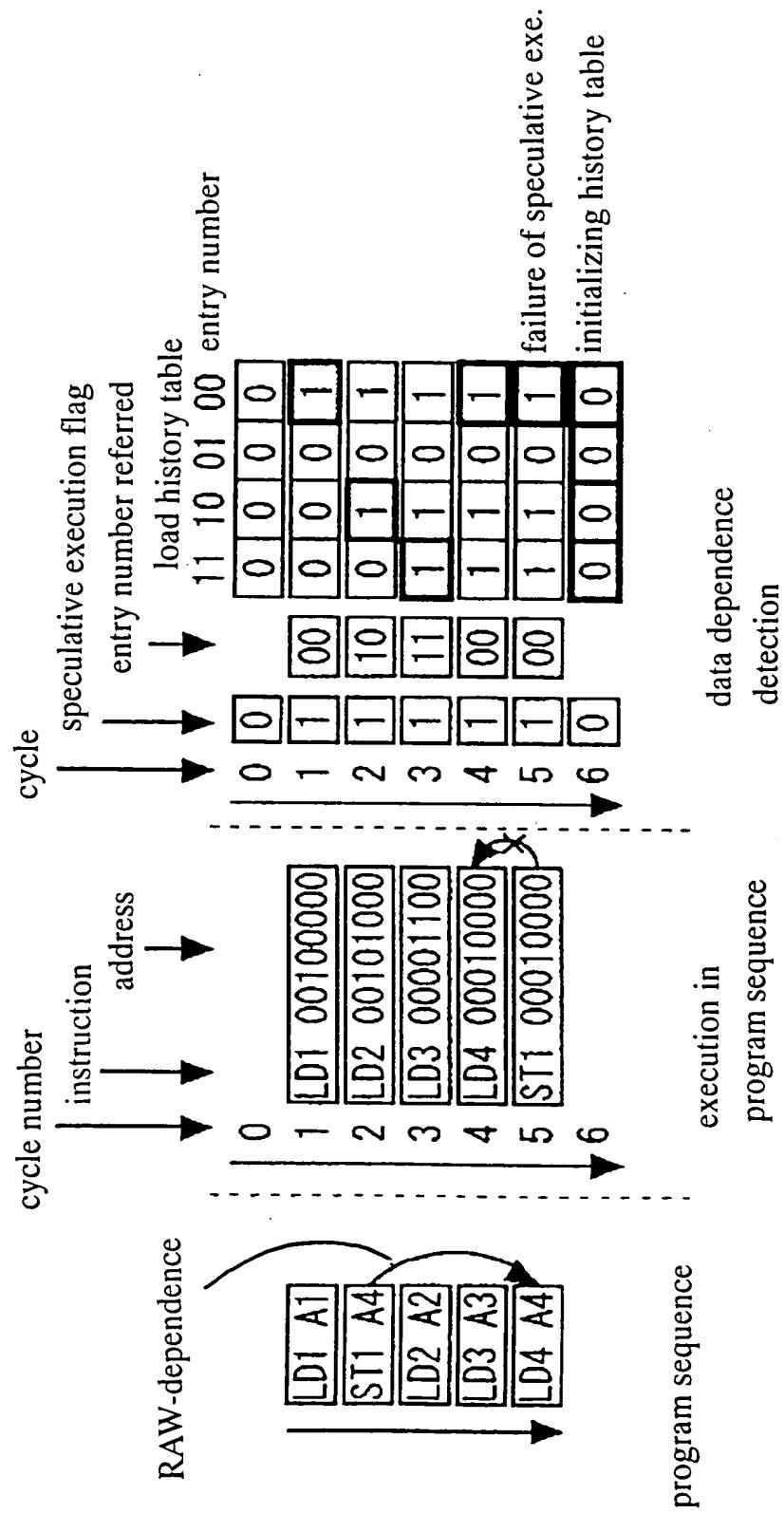


FIG. 7A

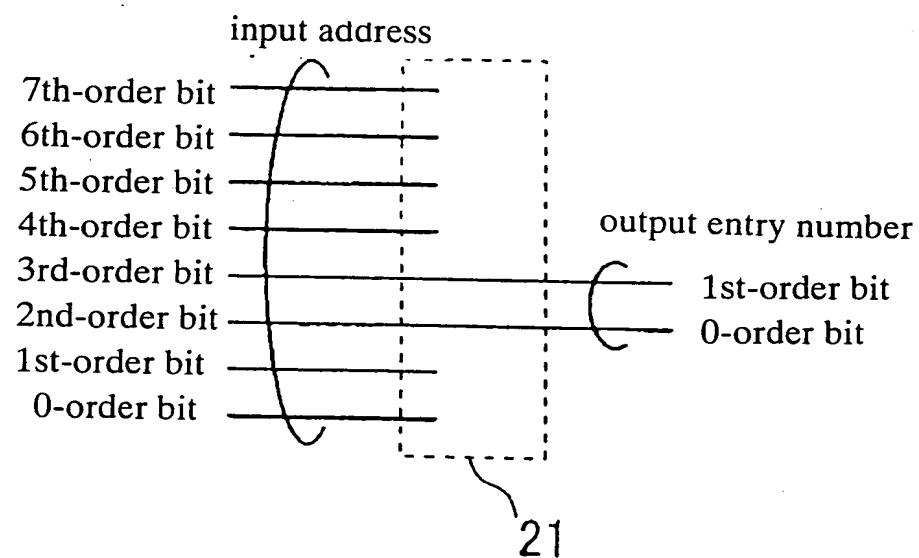




FIG. 7B

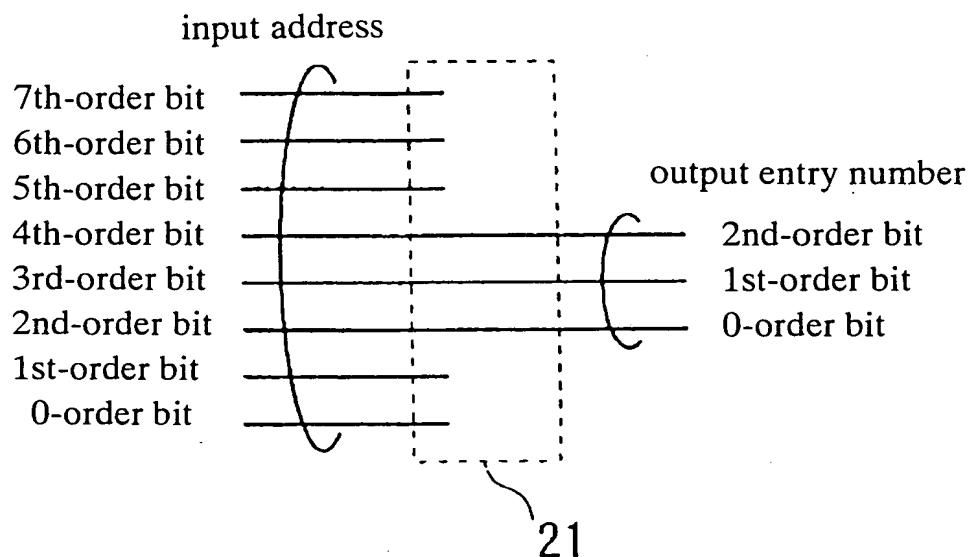
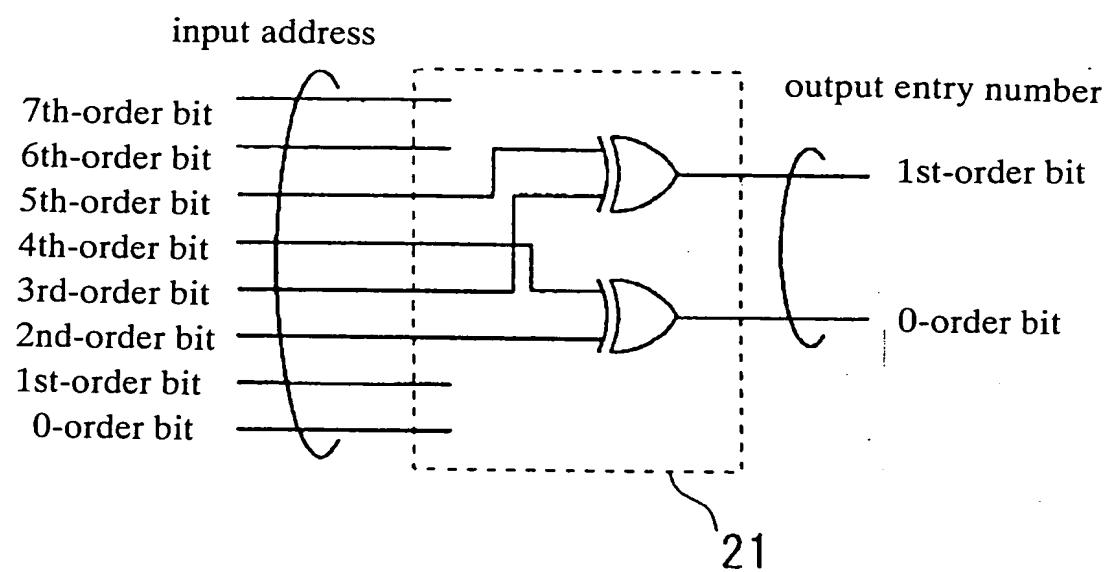


FIG. 7C

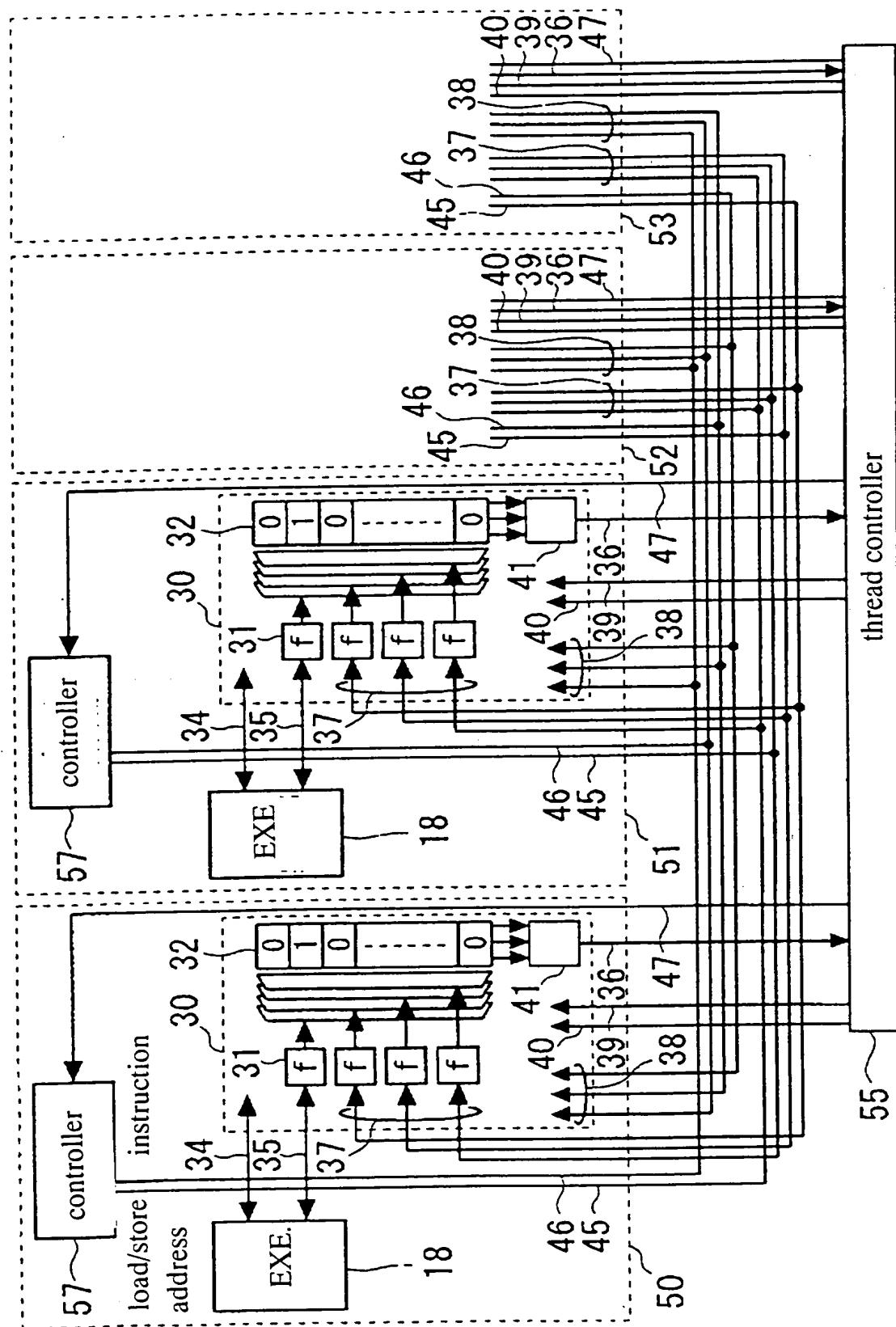




Title: DATA PROCESSOR WITH AN IMPROVED DATA DEPENDENCE DETECTOR

Inventors: Atsufumi SHIBAYAMA, et al.
Appl. No.: 09/994,806

FIG. 8





Title: DATA PROCESSOR WITH AN
IMPROVED DATA DEPENDENCE
DETECTOR
Inventors: Atsufumi SHIBAYAMA, et al.
Appl. No.: 09/994,806

FIG. 9A
FIG. 9B

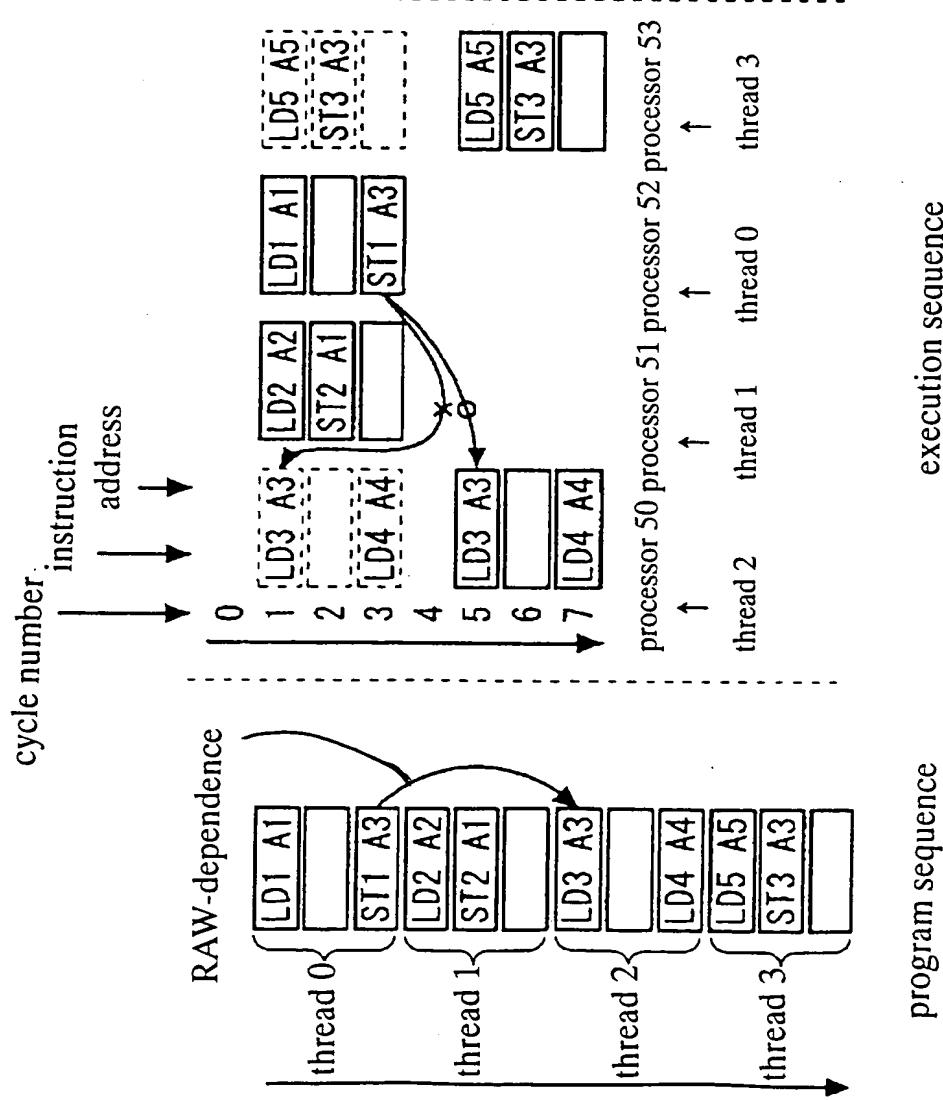


FIG. 9C

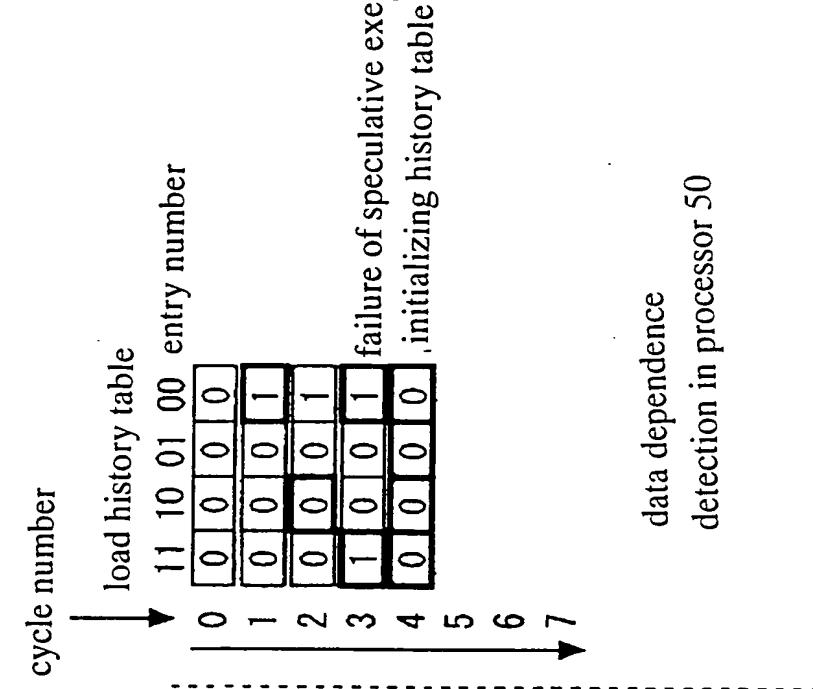


FIG. 10

